

Dimension Polyant initially became involved in the NASA Long Duration Balloon project due to its association with Reemay Inc. Reemay produces spun bonded, non woven, polyester materials. Laminates of polyester film and Reemay were being explored as a possible envelope material. The polyester film has good tensile strength and gas holding characteristics but it prone to cracking and pin holes. We were asked to laminate the Reemay to the film because of our capability to handle light weight film (.25 mils) and solvent based adhesives. While the Reemay did help protect the polyester film, and is good from a cost stand point it, proved to be to heavy relative to the amount of tensile strength that it could contribute to the laminate.

An outline of the basic requirements of the materials are: A tensile strength of at least 40 pounds per inch. Total weight of less than 1.5 ounces per square yard. Good tear resistance. Operational temperature of minus -30 C , with exposure to -100 C during ascent. Minimal gas loss. The ability to assemble gas tight joints.

We were then asked to produce laminates using some of the light weight fabrics for reinforcement of the film. The materials selected were the fabrics that are normally used to make spinnakers (the balloon like sails used in racing). These are woven from high tenacity fine denier polyester and nylon and weigh less than 1 ounce per yard. The 10 foot diameter test sphere made by Raven Industries was made with a 30 denier polyester laminated to .25 mil polyester film which we produced.

Under the direction of Magdi Said at NASA's Wallops Island Facility and Mike Smith from Raven Industries we are continuing to explore the lamination of various fabrics and films in an attempt to optimize the performance of the material.

Dimension Polyant's participation in NASA's Ultra Long Duration Balloon Project

Dimension Polyant was invited to attend the Balloon Conference held at Goddard Space Flight Center June 24-25, 1997. Following is a summary of the remarks made by David McGill concerning our involvement in producing new envelope materials for the long duration balloon project

Dimension Polyant Sailcloth was founded in 1977 with the goal of producing the worlds most advanced textiles used on sailboats. During this time fabric developed for use on sails was primarily tightly woven nylon and polyester fabrics with coated or impregnated finishes. Dimension broke new ground with the development of laminated sailcloth that bonded loosely woven scrims encapsulated with two layers of polyester film. The Tri Ply™ sailcloth style revolutionized the market and is still in the forefront of sailcloth technology. As the market for laminated materials grew rapidly in the mid 1980's, Dimension moved towards manufacturing rather than converting their innovative fabrics. This production control enabled Dimension to become the sailcloth industry leader in a market that requires responsive service, extensive quality control, highly specialized products and constant distribution of technical information.

Dimension Sailcloth and Polyant were combined in 1991 by the Verseidag Group of Krefeld, Germany. Polyant was Europe's leading producer of sailcloth. Their extensive production facility in Kempen Germany is the worlds only completely vertical mill designed to weave and finish sailcloth. The US production facility, located in Putnam Connecticut, is a 55,000 square foot plant built specifically for manufacturing of high performance materials. This complete facility as well as our extensive experience in specialized textiles has increased our ability to service other industries